

PATENT SPECIFICATION

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(54) SACK

(71) We, KONINKLIJKE EMBAL-
 LAGE INDUSTRIE VAN LEER B. V., a
 Dutch Corporate Body of
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 Netherlands, do hereby declare the
 invention, for which we pray that a patent
 may be granted to us, and the method by
 which it is to be performed, to be
 particularly described in and by the
 following statement:

This invention relates to sack comprising
 an inner envelope of porous material, such
 as extensible paper, and an outer plastics
 envelope.

Such a sack is already known. When
 filled with fine powdery materials, which
 contain a certain quantity of air, the
 entrapped air should be allowed to escape
 so that a larger quantity of powdery
 material can be packed in the sack and the
 filling operation can take place as fast as
 possible.

With the known sack the air escaping
 through the wall of the inner envelope of
 for instance extensible paper, has to flow
 out through the space between the inner
 and outer envelopes. The disadvantage is
 that the air cannot escape fast enough due
 to the fact that the walls of the inner
 and outer envelopes engage each other and
 are pressed against each other more and
 more during the filling operation. A further
 disadvantage is that such sacks cannot be
 used in a form having a valve or other
 special filling opening at one side of an
 otherwise closed top, which opening allows
 the insertion of a filling tube.

Such a filling opening would not allow an
 adequate escape of air through the space
 between the inner and outer envelopes.

A further disadvantage is that the inner
 paper envelope has to contribute to the
 strength of the entire sack due to the fact
 that the plastics film used for the outer sack
 has insufficient tensile and tear strength.

According to the present invention
 there is provided a sack comprising an inner
 envelope of porous material and an outer
 envelope of laminated plastics material
 including two mono axially stretched films,

the orientation direction of one film being
 at an angle to the direction of orientation of
 the other film, and the outer envelope being
 perforated. The plastics material may be
 polyethylene and a suitable laminate of
 mono-axially stretched films of
 polyethylene is already known in the trade
 under the trademark "VELeRON"[®]. This
 material can be perforated and from this
 perforated material the outer envelope is
 made. This material itself is sufficiently
 strong to take up all loads. Due to the
 perforations, which do not affect the
 strength, the air can immediately escape.
 This again allows the use of the above-
 mentioned special filling opening. The
 laminate used may have a thickness of 75 to
 120 micron and preferably has a thickness
 of 100 micron. The micro-perforation
 applied to the laminate is a regular
 pattern of perforations each having
 a diameter of 0.1 mm with a spacing of 5
 mm in one direction and 10 mm in the
 perpendicular direction. Other dimensions
 and arrangements of the perforations are
 possible of course.

The inner envelope may be made of a
 light crepe paper of for instance 75 g/m²,
 but other papers may be used with a higher
 or lower weight, such as 90 g/m² or 110
 g/m².

Preferably, the construction of both
 envelopes is such that the seams of the
 inner and outer envelopes do not coincide,
 but are spaced e.g. approximately 100 mm
 apart. The inner and outer envelopes are
 spot glued to each other at the bottom and
 top of tube lengths from which the
 envelopes are made. The number of top
 and bottom glue connections usually is 10
 and they are equally spaced. Their position
 should be chosen as close as possible to the
 top and bottom, the distance from top and
 bottom being usually 50 mm. Between top
 and bottom there should be no connection
 along the length of the sack to allow the
 extensible paper of the inner sack to extend
 under impact load without tearing.

The glue used can be ordinary paper glue
 such as starch, but polyvinyl acetate glue is

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preferred for inner and outer envelope connections.

5 A sack embodying the invention is shown in the accompanying drawing provided with a special filling opening. The perforations of the outer envelope, and the porous paper material of the inner envelope, and the seam connections are shown in the drawing.

10. WHAT WE CLAIM IS:—

1. A sack comprising an inner envelope of porous material and an outer envelope of laminated plastics material including two mono axially stretched films, the orientation direction of one film being at an

angle to the direction of orientation of the other film, and the outer envelope being perforated.

2. A sack according to claim 1, wherein the outer envelope is made of polyethylene.

3. A sack according to claim 1, substantially as herein described.

4. A sack substantially as herein described and illustrated in the accompanying drawing.

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1462941 COMPLETE SPECIFICATION
1 SHEET *This drawing is a reproduction of
the Original on a reduced scale*

